

## WHAT IS CLAIMED IS:

1. A core structure of an integral heat-exchanger, comprising:  
at least two first heat exchanger tubes which extend in parallel with each other;
- 5 at least two second heat exchanger tubes which extend in parallel with each other, the two second heat exchanger tubes being juxtaposed with the first heat exchanger tubes; and  
a corrugated fin including a corrugated first part interposed between said first heat exchanger tubes, a corrugated second  
10 part interposed between said second heat exchanger tubes and a flat connection part arranged between the corrugated first and second parts,  
said corrugated first part of the fin being formed with a plurality of first louvers each extending substantially between the  
15 two first heat exchanger tubes;  
said corrugated second part of the fin being formed with a plurality of second louvers each extending substantially between the two second heat exchanger tubes, the innermost one of said second louvers being positioned away from the innermost end of  
20 said corrugated second part of the fin by a given length; and  
said flat connection part being formed with a third louver in the vicinity of the innermost one of said first louvers, said third louver being constructed to obstruct a heat transfer in the fin.
- 25 2. A core structure as claimed in Claim 1, in which said first louvers and second louvers are constructed to improve a heat radiation of the fin, and in which each of said first, second and third louvers extends in a direction perpendicular to the direction in which air flows.
- 30 3. A core structure as claimed in Claim 1, in which the distance between said third louver and the innermost one of said first louvers is greater than the distance between adjacent two of

said first louvers, said first louvers being arranged at a constant pitch.

4. A core structure as claimed in Claim 1, in which second  
5 heat exchanger tubes are located behind said first heat  
exchanger tubes with respect to a direction in which air flows.

5. A core structure as claimed in Claim 4, in which said first  
heat exchanger tubes and said corrugated first part of the fin are  
10 arranged to treat with a lower temperature and in which said  
second heat exchanger tubes and said corrugated second part of  
the fin are arranged to treat with a higher temperature.

6. A core structure as claimed in Claim 5, in which said first  
15 heat exchanger tubes are arranged to flow therethrough a  
refrigerant of an automotive air conditioner and said second heat  
exchanger tubes are arranged to flow therethrough an engine  
cooling water.

7. A core structure as claimed in Claim 1, in which the  
20 distance between said third louver and the innermost end of said  
corrugated second part of the fin is less than 12mm, and in  
which said given length is greater than a pitch at which said  
second louvers are arranged.

8. A core structure as claimed in Claim 1, in which the length  
25 between the third louver and the innermost one of said second  
louvers is substantially equal to the length of said flat connection  
part of said fin.

9. A core structure as claimed in Claim 1, in which a front  
30 cluster including said first louvers and said third louver and a  
rear cluster including said second louvers are arranged

symmetrically with respect to said flat connection part of said fin.

10. A core structure as claimed in Claim 9, in which a center  
line of said corrugated fin is located in a center portion of said  
5 flat connection part.

11. A core structure as claimed in Claim 1, in which the width  
of the first heat exchanger tube is different from that of the  
second heat exchanger tube.

10 12. A core structure as claimed in Claim 11, in which the  
number of louvers provided in a front cluster including said first  
louvers and said third louver is different from that of the louvers  
provided in a rear cluster including said second louvers.

15 13. A core structure of an integral heat-exchanger, comprising:  
at least two first heat exchanger tubes which extend in  
parallel with each other;

20 at least two second heat exchanger tubes which extend in  
parallel with each other, said second heat exchanger tubes being  
juxtaposed with said first heat exchanger tubes; and

a corrugated fin including a corrugated first part interposed  
between said first heat exchanger tubes, a corrugated second  
part interposed between said second heat exchanger tubes and a  
25 flat connection part arranged between the corrugated first and  
second parts,

said corrugated first part of the fin being formed with a  
plurality of first louvers each extending substantially between the  
two first heat exchanger tubes;

30 said corrugated second part of the fin being formed with a  
plurality of second louvers each extending substantially between  
the two second heat exchanger tubes; and

said flat connection part being formed with a plurality of

heat radiation portions, each radiation portion being constructed not to largely deteriorate the heat transfer in the fin.

14. A core structure as claimed in Claim 13, in which said heat  
5 radiation portions are auxiliary louvers, each auxiliary louver being smaller in size than each of the first and second louvers.

15. A core structure as claimed in Claim 14, in which each of  
10 said auxiliary louvers extends in a direction perpendicular to the direction in which air flows.

16. A core structure as claimed in Claim 13, in which said heat  
radiation portions are projections integrally formed on the flat  
connection part of the corrugated fin.

15 17. A core structure as claimed in Claim 13, in which said heat radiation portions are raised parts which are formed by cutting and raising the cut portions.

20 18. A core structure as claimed in Claim 13, in which the distance between the innermost one of said corrugated first part of the fin and the innermost one of said corrugated second part of the fin is less than 12mm.

25 19. A core structure as claimed in Claim 1, in which the number of the louvers provided in a front cluster including said first louvers and said third louver is different from that of the louvers provided in a rear cluster including said second louvers, and in which said flat connecting part of the corrugated fin is  
30 formed with a plurality of heat radiation portions which are located closer to the corrugated second part than the corrugated first part, each radiation portion being constructed not to largely deteriorate the heat transfer in the fin.

20. A core structure as claimed in Claim 19, in which said heat radiation portions are auxiliary louvers, each auxiliary louver being smaller in size than each of the first, second and third  
5 louvers.

21. A core structure as claimed in Claim 20, in which each of said auxiliary louvers extends in a direction perpendicular to the direction in which air flows.  
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22. A core structure as claimed in Claim 19, in which said heat radiation portions are projections integrally formed on the flat connection part of the corrugated fin.  
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23. A core structure as claimed in Claim 19, in which said heat radiation portions are raised parts which are formed by cutting and raising the cut portions.

24. A core structure as claimed in Claim 19, in which the distance between the innermost one of said corrugated first part of the fin and the innermost one of said corrugated second part of the fin is less than 12mm.  
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